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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,638	10/19/2001	David Patrick Magee	TI-32986	8619

23494 7590 05/25/2006

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EXAMINER

JAMAL, ALEXANDER

ART UNIT	PAPER NUMBER
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2614

DATE MAILED: 05/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action
Before the Filing of an Appeal Brief**

Application No.

10/044,638

Applicant(s)

MAGEE ET AL.

Examiner

Alexander Jamal

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--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 17 May 2006 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
(b) ☐ They raise the issue of new matter (see NOTE below);
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☐ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: _____.

Claim(s) objected to: _____.

Claim(s) rejected: _____.

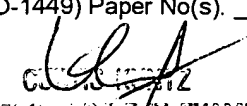
Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: see attached response to arguments.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08 or PTO-1449) Paper No(s). _____.
13. ☐ Other: _____.


SUPERVISOR / PATENT EXAMINER
TECHNICAL CENTER 2600

Response to Arguments

1. Applicant's arguments with respect to claims 33-53 have been considered but are not persuasive.

As per applicant's argument that none of the references teaches determining noise estimation of an individual tone based upon the noise estimation of a nearest tone in the signal (remarks pages 8,9), examiner disagrees. In view of applicant's specification, the noise estimation on an individual tone (first type of tone-a training tone) that is used to compute beamforming for a nearest tone (second type of tone-a data tone), as per claim 33, is done in the sense that a smaller number of tones be analyzed for noise and that analysis used for the nearby data tones for the purpose that the training tones be used to identify the transfer function (noise estimate, distortion, fading.. ect..) of the transmission channel (applicant's specification page 3 lines 9-12).

Applicant's primary embodiment is an OFDM system where a serial data stream is transformed into a number of tones (specification page 7 lines 4-25, Fig. 2). Applicant discloses the training tones are spread throughout the spectrum and are extracted and used with a channel-estimation procedure to mitigate the effects of interference and distortion (specification page 8 lines 15-25). Applicant discloses that the training tones are spread out throughout the databurst spectrum, each training tone is a good approximation for the data tones near said training tone (specification page 8 line 25 to page 9 line 6).

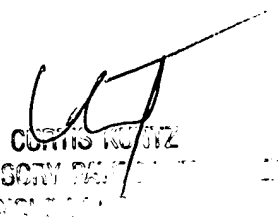
Page 8 last paragraph of applicant's remarks request the examiner to note that the cited prior art references teach estimating a transmission channel transfer function (noise, SNR, pathloss ect..) using training tones and then using said transfer function information to provide weighting (noise mitigation) for a basestation (such as in the beamforming). As admitted by the applicant, the prior art references apply the channel estimates (transfer function) to all data tones on that particular channel. This is the SAME function as claimed by applicant, and SAME function disclosed in applicant's OFDM embodiment. Examiner requests applicant to show how these two functions are functionally different. The claimed function and the prior art disclosed function both use intermittent training tones to produce a channel estimate. The Raleigh reference is not limited to any particular transmission protocol. The Youssefmir reference discloses using an FDMA, TDMA, or CDMA protocol, and Paulraj discloses an OFDMA, TDMA, CDMA, or FDMA protocol. In any FDMA, or OFDMA system that uses multiple carriers at different frequencies, intermittent training tones will only provide accurate channel estimates for frequency areas near to said training tone frequency. When the prior art system makes a transmission channel transfer function estimate (noise, SNR, pathloss ect..) that estimate will be over a frequency range. When that estimate is used to mitigate noise in received data, the estimate will only be applied to each data tone at or near the frequency of said data tone. The channel estimate at a particular data tone frequency will be based on the nearest training tone estimate to that frequency. For example, one skilled in the art would not look at a 3MHz training tone to estimate the channel transfer function at 10KHz, instead one skilled in the art would send a 10KHz training tone, or at least

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look to a tone closer in frequency to 10KHz. Likewise, one skilled in the art, one would not use a channel estimate based on a 3MHz tone to provide an accurate channel estimate to be applied to a data tone at 10KHz.

Even if applicant were to provide a valid difference between the claimed invention and the prior art, examiner notes the claim language of independent claim 33 recites 'computing beamforming for **at least** one of a plurality of a second type of tone based **in part** on noise estimates of **at least** one of the plurality of the first type of tones. As written, the claim may be read as any number of training tones may be used to provide part of the noise estimation for any number of data tones.

Applicant argues (remarks page 9) that the claimed invention facilitates beamforming for each individual tone based upon it's own noise estimate rather than an entire channel estimate, but that is **not** true. The whole purpose of applicant's claimed invention is to analyze a lesser number of tones (there are less training tones than data tones) and apply a noise estimate at a particular training tone frequency to surrounding data tones. Hence each data tone does **not** have it's own noise estimate, but rather use the general channel estimate that is defined by a set of points on the frequency spectrum defined by the specific training tone frequencies.


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